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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

Yellowstone NATIONAL PARK

FILE NO. 143

MONTHLY REPORTS

May, 1925

MAY, 1925

June 4, 1925.

Dear Sir:

The following is my report on conditions in Yellowstone National Park and on the operation of the Park for the month of May, 1925:

I. GENERAL CONDITIONS

Weather

The following records are quoted from the report for May of the Observer in charge of the local United States Weather Bureau at Mammoth Hot Springs, Park Headquarters:

The month was warm with 21% more than the usual amount of moisture.

TEMPERATURE: Monthly mean, 48.1° , is 0.7° above normal, and the highest mean for the past 23 years. However, the extremes of temperature were not unusual, the highest being 76° on the 29th and the lowest 23° on the 4th.

PRECIPITATION: Total, 2.32 inches, is 0.41 inch above normal, and the greatest for the past four years. A measurable amount of precipitation occurred on 15 days and was well distributed through the month.

SNOWFALL: Total 0.7 inch; normal 4.7 inches. Snow occurred only on the 7th and 8th and mostly melted as it fell.

WIND: Average hourly velocity 7.5 miles; normal 8.0. The highest velocity was 39 miles per hour from the southwest on the 11th.

SUNSHINE: Percentage of possible 54; normal 54.

General Road Conditions

Road conditions are being improved from day to day. The road from Basin to Norris and West Yellowstone was opened on the 5th and the road from Mammoth to Norris was opened on the 10th. The first auto (mail stage) from Gardiner to Cooke City went through on the 11th and on the 12th the Chief Ranger journeyed from Mammoth to West Yellowstone in the first car of the season between these points.

Auto trucks went through to Canyon on the 19th and to Lake on the 23rd. The road from Lake to Thumb and Basin has not been opened to date but there are no unusual obstructions between these points and this road will be open to restricted travel early in June.

The Dunraven Pass, Sylvan Pass and Thumb to Snake River roads will be open to travel about June 18th.

Snow Depths

There are no snow depths of consequence except in the high mountain passes and on the heavily timbered areas of the high elevations. There is 5 feet 8 inches of snow at the 6 mile post north of Snake River station. The snow depth in Sylvan Pass is approximately 20 feet and reports from Dunraven Pass indicate depths ranging from 2 to 12 feet. All the lower elevations have been practically barren of snow throughout the month.

Travel

Travel has been restricted on all the park roads except between Mammoth and Gardiner but despite the travel restrictions an unusual number of visitors were registered at the North Gate. A limited number of persons were admitted at the West Gate during the last ten days of the month. The travel figures for May are as follows:

North Gate, 464 visitors - 168 cars

West Gate, 88 visitors - 26 cars; total for the month 552

visitors, 194 cars. The pre-season travel to May 1st consisted of Park visitors unclassified 1181, cars unclassified 293; the pre-season travel to date consists of Park visitors unclassified 1733, cars unclassified 487, as compared with 1124 visitors, unclassified, and 336 cars, unclassified, for 1924.

II. ADMINISTRATION OF THE PARK

Personnel

On May 1st there were 63 employees on the payrolls, and on May 31st there were 64. The following list shows the number of appointees

of various classes serving during the month, with a general statement of the kind of work in which they were engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of Work Performed</u>
1	Superintendent	General administration and supervision of all activities in the park.
2	Asst. Superintendents	1 in charge of administration, purchasing, disbursing; 1 in charge of property, equipment, transportation, cost accounts, inventories, etc., also acting as Assistant to Superintendent in capacity as Field Asst. to the Director.
2	Asst. Engineers	1 in charge of engineering work; 1 assisting.
5	Clerks	1 Cost Accounting Clerk; 1 Personnel and File Clerk; 1 Clerk on orders, proposals and vouchers; 1 clerk on timekeeping and payroll work; 1 stenographer-typist on Superintendent's correspondence and handling miscellaneous work on administrative side of office.
3	Electricians	Operated power plant regular shift, including Sundays, read meters, did necessary line work.
3	Foremen	1 in charge of headquarters corral and freighting work about headquarters; 2 on work on roads.
2	Telephone Switchboard Operators	1 temporary WAE operator; 1 permanent operator (on furlough).
1	Master Mechanic	In charge of shops and of repair to machinery.
2	Blacksmiths	General blacksmith work, including shoeing of horses in shop, repairing tools and equipment.
1	Master Plumber	In charge of general plumbing and water and sewer systems.
1	Master Painter	General shop work including painting equipment and buildings.

2	Auto Mechanics	1 on duty in power plant; 1 on repair work.
3	Laborers	Teaming, freighting, assisting mechanics and miscellaneous work at headquarters.
1	Steward & Master of Transportation	In charge of all transportation and of storehouses.
1	Chief Buffalo Keeper	In charge of Lamar Buffalo Herd.
1	Asst. Buffalo Keeper	In charge of hay ranch operations at Slough Creek.
1	Buffalo Herder	Assisting buffalo keeper.
1	Park Naturalist	Scientific research work and developing museum.
1	Chief Park Ranger	In charge of ranger force.
1	1st Asst. Chief Park Ranger	In charge of Northern District.
2	Assts. Chief Park Ranger	1 on duty at Lake District; 1 in charge of Western Supervisory Territory (transferred to Platt Park on May 16.)
22	Park Rangers (17 WAE)	Patrolling, protecting game and miscellaneous duties.
4	Park Rangers, temporary (3 WAE)	Patrolling, protecting game and miscellaneous duties.

Leaves of Absence

Eri A. Allan, Electrician, May 22-23, 2 days.
 Clifford Anderson, Park Ranger, May 1-9, 8 days.
 David E. Andrew, Park Ranger, May 1-13, 11 days.
 Albert T. Bicknell, Park Ranger, May 14-16, 3 days.
 Forest L. Carter, Asst. Ch. Park Ranger, May 1-11, 9 days.
 William I. Davis, Assistant Engineer, May 6-7, 2 days.
 John Delmar, Jr., Park Ranger, May 1-8, 7 days.
 Joseph Douglas, Asst. Chief Park Ranger, May 18 (noon)-20 (noon), 2 days.
 Carl N. Dunrud, Park Ranger, May 1-8, 7 days.

Andrew R. Edwin, Clerk, May 11-12, 2 days.
 Andrew R. Edwin, Clerk, May 20-30, 9 days.
 Nelson E. Hall, Park Ranger, May 1-20, 17 days.
 Arthur Jacobson, Park Ranger, May 1, 1 day.
 Joseph Joffe, Clerk, May 2-7, 5 days.
 Burton C. Lacombe, Chief Buffalo Keeper, May 6-7, 2 days.
 Burton C. Lacombe, Chief Buffalo Keeper, May 23-25, 2 days.
 Harry J. Liek, Park Ranger, May 21-22, 2 days.
 Albert L. McLaughlin, Park Ranger, May 1-2, 2 days.
 Albert L. McLaughlin, Park Ranger, May 20-23, 4 days.
 Walter J. Reimann, Park Ranger, May 1-6, 5 days.
 Robert Robinson, Auto Mechanic, May 27-28, 2 days.
 Edmund J. Sawyer, Park Naturalist, May 1 (noon)-2 (noon), 1 day.
 Edmund J. Sawyer, Park Naturalist, May 23 (noon)-25 (noon), 1 day.
 Julia S. Stockett, Clerk, May 1-4 (noon), 2-1/2 days.
 Harry Trischman, 1st Asst. Chief Park Ranger, May 13 (noon)-23 (noon), 9 days.
 William Wiggins, Master Plumber, May 1-2, 2 days.
 Roby Roy Wisdom, Park Ranger, May 1-15, 13 days.
 Sam T. Woodring, Chief Ranger, May 6-7, 2 days.
 Sam T. Woodring, Chief Ranger, May 18 (noon)-19, 1-1/2 days.
 William Wiggins, Master Plumber, May 14-16, 3 days. (SICK LEAVE)
 Edmund J. Sawyer, Park Naturalist, May 16 (noon)-18 (noon), 1 day.

Leave Without Pay

Nellie Roach, Telephone Operator, May 1-31.
 August C. Neumann, Master Painter, May 1-23.
 Harry Trischman, 1st Asst. Chief Park Ranger, May 23 (noon)-31.

Appointments and Promotions

Oscar B. Eggen, Chief Timekeeper, \$1500 per annum and quarters, WAB,
 entered on duty May 26, 1925.
 Horace M. Albright, Superintendent, promoted from \$4600 to \$4800, eff. May 1.
 Julia S. Stockett, Clerk, promoted from \$1620 to \$1680, effective May 1.

Separations

Forest L. Carter, Asst. Chief Park Ranger, effective close of May 15, 1925.
 (Transferred to Platt National Park as Superintendent).

Office Force Activities

During the month of May 1614 pieces of official mail were received
 and 1704 were sent out.

No circulars were issued during the month.

Finances

Costs of Operation, etc.: The cost of operating the park for the month of
 May, 1925, will be shown on the Monthly Cost Accounting Report which will go
 forward as soon as prepared.

Revenues:

Sale of Electricity:

Certified Check #993, dated May 7, 1925, drawn by W. M. Nichols on the National Bank of Montana, Helena, Mont., to The Director National Park Service, amount...\$133.60

Certified Check #1022, dated May 7, 1925, drawn by W. M. Nichols on the National Bank of Montana, Helena, Mont., to The Director, National Park Service, amount... 69.30

Certified Check #557, dated May 6, 1925, drawn by Freda Whittaker on the National Park Bank, Livingston, Mont., to The Director, National Park Service, amount..... 3.35

Certified Check #969, dated May 7, 1925, drawn by Vernon Goodwin on The National Bank of Montana, Helena, Mont., to The Director, National Park Service, amount..... 4.89

Certified Check #482, dated May 10, 1925, drawn by Anna K. Pryor on The National Park Bank, Livingston, Mont., to the Director, National Park Service, amount..... 3.90

Certified Check #1246, dated May 9, 1925, drawn by W.M. Nichols on The National Bank of Montana, Helena, Mont., to The Director, National Park Service, amount..... 4.31

Franchise Charges:

Certified Check #245, dated May 30, 1925, drawn by Lillian Shaw on The National Park Bank, Livingston, Mont., to The Director, National Park Service, amount..... 20.00
\$239.35

Report on Commissary and Transportation

The Commissary employees were engaged in issuing supplies to the various road camps in the park, and in receiving and storing supplies received from Gardiner.

The Transportation Department hauled rations, supplies and equipment from Gardiner to Mammoth, and also to camps in the park. Telephone poles were hauled between Norris Junction and the Lake. Cordwood was brought in to Mammoth from the park. This was out last year.

III. MAINTENANCE OF IMPROVEMENTS AND FACILITIES.

Grounds

Necessary work, such as hauling wood, coal, ice and garbage was done in this department.

Roads, Trails and Bridges

Shoshone Forest Road: A crew of 11 men and 4 teams were employed all the month on this section. Extreme high water in the Shoshone River caused some damage to revetments and diversion cribs and in two places was over the roadway but no material damage was done to the road.

A log jam formed at the Palisades and before it could be removed took out one crib and damaged another. A drift of logs floating down the river lodged against the brush riprap above Hanging Rock and carried a part of it away.

The past winter two sections of roadway slid out, one about one-half mile above the Forest Reserve line and the other at Thousand Foot Cliff. The former was repaired by building a log retaining crib, 8 logs high and 120 feet, and at the other place a crib 15 logs high and 30 feet long was built.

A large log jam which had formed on Grinnel Creek above the bridge was blasted out to prevent the stream being diverted.

The crib just above the mouth of Mormon Creek was repaired and raised and the roadway further protected by placing rock riprap.

The road between the east line of the Forest Reserve and Moss Creek was graded, ditches and culverts cleaned, fallen rocks removed and general repairs made.

At the end of the month the river had receded to such an extent that there is little danger of further damage to the roadway or protective works.

Mammoth Section: A small crew worked part of the month on the road between Gardiner and Golden Gate, removing rock and other fallen material and placing gravel on short sections where most needed.

Retaining Wall at Tower Falls: Sometime the past winter a section of rock retaining wall at Overhanging Cliff slid out, leaving a large gap in the roadway. A small crew was organized May 14th and the wall replaced with a more substantial masonry structure, containing 142 perch. Rock piers were constructed on top of the wall and the log guard rail replaced.

Repairs to Sprinkling System: A crew of four men were engaged during the month making repairs to sprinkling system and putting the supply

tanks in operation for the summer. Tanks were caulked, ditches cleaned, rams started and other work done necessary for providing a supply of water when the sprinklers begin operation.

Electrical and Telephone Systems

The Electrician installed 1 fire alarm switch and connected up two transformers at the hotel; connected up two transformers at the hospital; put in wiring for 8 lights for shower bath in public auto camp, and put in wiring for push button and door bell at commissary. Work was also done on the telephone lines in the park, 60 poles being reset, and 18 trees cut off to make a clearing for the telephone line.

The Power Plant was operated in the usual manner. It was run constantly with the results shown in comparison with those of May, 1924, as follows:

	1924	1925
Total current generated, in KWH	34,000	41,840
Of this, sold to public operators at 5¢ KWH	4,219	2,745.5
Consumed for street lighting	1,141	1,932.
Balance, consumed in government buildings, for power and lighting, and lost on lines in transit	28,640	37,162.5
Peak load during month in KWH	60	100

The Telephone and Switchboard office was open daily from 7:30 A.M. to 8:30 P.M. The total business handled was as follows:

	1924	1925
On Government local lines.....	4352	5356
On Hotel Company lines.....	600	899
On Long Distance connections.....	393	353
	<u>5345</u>	<u>6608</u>

Water and Sewer Systems

The work of the plumbing department consisted of the following:
General repair of buildings and upkeep of water and sewer system at Mammoth.

Repaired pipe line from Glen Creek.

Building for showers at Mammoth auto camp completed except for shower stall doors; installed all showers, also tables and toilets at Mammoth auto camp, all tables, toilets and buildings being creosoted.

Connected gasoline tank at Gardiner Station.

Installed new pipe line, and drainage line at Tower Falls auto camp; also built toilets and tables, and creosoted same at above camp.

Turned on water for the different auto camps throughout the loop.

Began the installation of water system at Fishing Bridge auto camp.

Machinery and Equipment

Repairs were made on freight trucks that are running, and 4 trucks were overhauled in the garage, besides service work on two compressors, trucks and caterpillar.

The Blacksmith was engaged in horseshoeing and repairs on equipment.

The Master Painter worked 4 days in the Superintendent's quarters and 4 days in Dr. Strickland's quarters. New woodwork at hospital was painted and beds and chairs were enameled. He painted large junction signs and made miscellaneous signs; also painted gas tank at Gardiner, and lettered same, and painted and varnished two F.W.D. trucks.

IV. CONSTRUCTION OF IMPROVEMENTS.

Roads, Trails and Bridges

PROJECT #6 - WIDENING ALONG FIREHOLE RIVER: This work is being done by force account. A crew was organized and camp established at Firehole Cascades May 20th, the snow conditions by that time being so favorable it was decided to begin this job 10 days sooner than planned.

The following employees were engaged on this work:

- 1 foreman
- 1 cook
- 1 flunkey
- 1 compressor operator
- 2 jackhammer men
- 1 powder man
- 3 teamsters
- 1 axeman
- 1 blacksmith
- 10 laborers
- 3 teams

The work to be done on this job is as follows:

Excavation - common	541 cu. yds.
" - loose rock	1,365 " "
" - solid rock	4,062 " "
12"C.M.P.culvert in place	275 lin. ft.
18"C.M.P. " " "	50 " "
Concrete in culvert headwalls	16-1/2 cu. yds.

Work done in May:

Solid Rock Excavation - 710 cu. yds.
12"C.M.P. culvert in place 48 lin.ft.

The new Ingersoll-Rand Type 20 portable compressor was tried out on this job and worked perfectly but so far has failed to deliver the amount of air expected of it. The machine has a rated capacity of 250 cubic feet of

air per minute which should be sufficient to operate three jackhammers. At first the pressure could not be raised above 60 pounds with two hammers operating, but after the Ingersoll-Rand service man made some adjustments and increased the speed the pressure can be retained at 80 pounds. There seems to be little chance however of using three hammers unless it is at a lower altitude than 7100 feet where we are now operating.

PROJECT #9 - RECONSTRUCTING AND SURFACING SECTIONS OF THE
MAMMOTH-TOWER FALLS ROAD:

This work is being done by force account. Good progress was made during the month in spite of the many rainy days. The steam shovel moved a distance of 3000 feet widening the roadway.

The following is an estimate of work done on this project to date:

	Unit	April	May	Total
Excavation-loose rock	cu.yds.	506	1025	1531
" common	cu.yds.		1049	1049
" solid rock	cu.yds.	802	2005	2807
12"C.M.P.culvert in place	lin.ft.	36	72	108
18"C.M.P. " " "	lin.ft.	30	40	70

The Zin-Ho compressor which we have used on various jobs for the past 6 years proved inefficient and was replaced with the old Chicoge Pneumatic Tool Company compressor, operated by a Holt tractor. This machine produces sufficient air to operate two jackhammers with such good effect that the drilling was finished at the end of the month except for a little ditch work.

In connection with this job a gravel pit was opened, and a road built to it and a trap installed for loading the gravel. Gravel operations will commence June 1st.

Following is the personnel of the crew for the month:

1 foreman	1 powderman
1 cook	1 four-horse teamster
1 flunkey	3 two-horse teamsters
1 steam shovel operator	2 pitmen
1 compressor operator	1 graderman
2 jackhammer men	1 axeman
1 truck driver	7 laborers
1 steam shovel fireman	5 teams

Improvements by Park Utilities

All new construction started last fall by the park utilities was practically completed during May.

The new temporary garage of the Yellowstone Park Transportation Company constructed to replace the one destroyed by fire, was finished during the month.

V. PROTECTION DEPARTMENT.

Patrols

The regular patrols were made from all stations and conditions are generally good throughout the park. Other duties of rangers on stations have consisted of cleanup work, brush burning, minor repairs to roads, bridges and telephone lines, etc. All members of the park ranger force that could be spared from their regular duties have been assigned to special work during the month.

The erection of a new two-room log cabin at the mouth of Blacktail Deer Creek required the services of 10 rangers from the 1st to the 10th of the month. Five rangers have been employed from the 12th to 27th inclusive on repairs and alterations to the buildings, fences and grounds at the Buffalo Corral-Mammoth. One Assistant Chief Park Ranger was employed on mosquito control from May 8th to 31st inclusive, and one park ranger was detailed to this work for 12 days. The last four days of the month were in part given over to the transfer of rangers with their supplies, provisions and personal effects from their winter to their summer stations. All stations accessible to park visitors were thus garrisoned prior to the opening date. The Chief Ranger has been continuously employed throughout the month in directing the various activities of his department.

Wild Animals

Forage Conditions: Forage conditions are increasingly good at all points; mild temperatures, frequent showers and an early spring gives promise of an abundant yield.

Elk: The elk are doing splendidly and their condition is remarkably improved despite the tick infestation; their shagginess is fast disappearing with the loss of their winter coats. The cows are heavy with calf but no new arrivals have been observed to date. The spring migration is not yet under way although there is some drift to the higher levels.

An unusual incident was observed on the 26th by the Chief Ranger, Park Naturalist Sawyer and Park Ranger Phillips. An old cow elk was seen to suckle a 2 year old calf; this is rarely, if ever, observed of elk in their native state and this particular variance is attributed to the state of semi-domestication of these particular individuals. They are members of a small band of about 20 that frequent headquarters where they are rationed with hay in winter and graze on the lawns and plaza in the spring and fall.

Deer: The deer have moved back to the grassy slopes and meadows of the uplands; the Mammoth herd moved out about May 20th. Their condition is excellent and substantial increases are expected during the course of the next few weeks.

Antelope: There is nothing of importance to report on the antelope herd this month. Small bands and scattered individuals are commonly seen

along the Yellowstone and Lamar Rivers all the way from Blacktail Deer Creek to Specimen Ridge and Mt. Norris.

Sheep: Park Ranger Bauman reports the loss of an old ewe at a point opposite the Needles, Yellowstone Canyon, Tower Falls District. The loss is attributed to natural causes incident to old age. Scattered bands of from 6 to 8 are observed daily at high points along the Yellowstone, particularly in the Hellroaring and Tower Falls Districts.

Moose: The moose are now widely scattered and only occasionally seen. The only noteworthy count submitted during the month was made by Assistant Chief Ranger Douglas following his return from the Upper Yellowstone patrol on May 3rd. A count of 30 was had in this district. A small band of five, consisting of 1 cow, 1 bull and 3 yearling calves are seen almost daily in the immediate vicinity of Tower Falls Station.

Buffalo - Lamar River Herd: The main herd is now ranging on the Lamar River meadows and the slopes of Mt. Norris. The calving season has been under way since late in April and a total of 42 have arrived to date. The Mammoth show herd consisting of a small band of selected individuals will be cut out and brought to the corral at Mammoth about June 15th.

Buffalo - Cold Creek - Pelican Flats Herd: There is nothing of interest to report at this time.

Bears - Black and Brown: Black and brown bear are now commonly seen at all their usual haunts. They have not been particularly troublesome or destructive and the property damage reported has been slight. Mothers with cubs ranging from two to three in number frequent all the main points of interest.

Bears - Grizzly: These animals have not appeared in any considerable numbers to date. However, a few have been observed in the Canyon and Lake Districts. They will, no doubt, be attracted to the garbage dumps in increasing numbers as the season advances.

Small Animals: Chipmunks and pine squirrels are appearing in increasing numbers; woodchucks are commonly seen along all the park roads. The armor clad, yellow-haired porcupine frequents the highways crossing and recrossing in indifferent leisurely fashion. He generally commands the right of way and his claims are rarely disputed. They are hardly considered a major attraction but they always command a passing interest. Small animals of the fur bearing variety, except beaver, are rarely seen at this season of the year.

Predatory Animals

Coyotes are occasionally seen in the areas frequented by deer, elk and antelope as their tendency is to follow the herds; very few, however, have been seen during the month. Four were killed since the last report by rangers on patrol, - 1 in the Hellroaring District, 2 in

the Soda Butte District and 1 on the Upper Yellowstone, making a season total of 176 as compared with a total of 226 last year.

Water Fowl

Ducks and geese were commonly seen on the lakes and streams throughout the month; a trumpeter swan was observed on a small lake in the Tower Falls District. Sea gulls first appeared at Yellowstone Lake on the 9th, and on the 14th the first pelicans of the season appeared at Lake Outlet. They were eleven in number.

Summer Birds

Summer birds are now here in variety lending color and music to the occasion. As if to requite us for sanctuary they grace us with their presence for a few weeks and then depart; their going occasions a feeling of personal loss which is never quite repaid until they come again.

Buffalo and Other Ranch Operations

Slough Creek Ranches: Thirty-five acres were plowed, harrowed and seeded to oats, timothy and clover. Other activities have consisted of general cleanup work.

Yancey Hay Ranch: Thirty acres were plowed, harrowed and seeded to oats, timothy and clover at this point and repairs were made to ditches and flume.

Buffalo Ranch: Twenty-five acres have been prepared and seeded to oats, timothy and red top. Other work has consisted of repairs and alterations to stables, repairs to fences and corrals, maintenance work on road and telephone lines, together with the routine work at the ranch.

Gardiner Hay Ranch: Only a limited amount of work was done at this point during the month. It consisted of ditch cleaning, irrigating and the removal and cleanup of the old hay corral. A balance of 8 tons of old hay was condemned and destroyed. There is a balance of 29 tons of hay at the Gardiner Ranch.

Geysers, Hot Springs, etc.

Norris Geyser Basin: This basin, which is the first one visited by the tourists entering by the east and north entrances, is said by geologists to be the youngest of all geyser basins. Certainly it is the most active. It has not yet developed any very big geysers. It has one very beautiful small geyser that for years erupted at intervals of two minutes. This is the Constant Geyser. However, it has erupted only once

or twice during the past two seasons and it would not be unfair to state that it has been inactive for two seasons. This geyser is again erupting on schedule.

It was observed that at the point where passengers alight from the cars to observe the basin there has developed an enormous pool of sulphur water, so heavily impregnated with sulphur that the sulphur itself is precipitated in a thick scum along the side of the pool. Down in the basin itself a paint pot of grey mud has developed underneath the tourist sidewalk and the walk will have to be moved at considerable expense, to avoid this new area of heat.

The most spectacular of all, however, is the occurrence of what I have called the "Red Growler" - only a few feet from the big Black Growler at the south end of the basin where people again get into their cars. This "Red Growler" is a steam vent emitting roars, caused by steam heavily impregnated with iron which is condensed on the adjoining rocks, giving them a dark red covering - hence the name, "Red Growler."

The Whirligig Geyser has developed a new whirl and is now operating from three openings instead of two.

The Mammoth Hot Springs: In the course of the month, I made several personal inspections of parts of the great hot springs terraces at Mammoth, and on May 31st, on foot and horseback, made a comprehensive survey of this whole hot spring region, which is the only one of its kind in the world.

I have found the Mammoth Hot Springs as a group more active than during any spring since 1920 and some activity even greatly surpasses that of 1920.

Beginning at the lowest terrace, Hymen, almost on a level with the floor of the old terrace on which the park headquarters stand, great changes are found to have taken place since last November. At this time the big central group of terraces belonging to Hymen were very active. Now the central group is quiescent. The principal activity is in a newly reopened spring east of the high central group. A considerable volume of water is flowing from this spring, and the algae coloring is delicate and beautiful. Another spring of Hymen back against the next terrace is active but not nearly as active as last year. Its water is flowing northwestward and around the central group. A third spring is sending up some water to the top of the central group but its flow is so small that the limestone terrace absorbs it before it can overflow and restore to the big group its highly colored algae.

Cleopatra Terrace, high above Hymen, is more active than last year, but its water is flowing over the northwestern exposure of the terrace instead of the eastern side as last year.

There is unusual activity in Minerva Terrace and on a small terrace below it which is regarded as a part of Minerva. This great

terrace in recent years has been quiescent, but old pictures show it to be one of the wonders of the Mammoth Hot Springs years ago.

Pulpit Terrace is beautiful and as active as usual at least, and probably more active. It is a very dependable spring.

The Great Jupiter Terrace, highest and biggest in bulk of all the terraces is very active but its waters are spread out more over the rim, and thus its display of colored algae is splendid, and far more spectacular than it was in 1924 and 1923, when its heavy volume of water was concentrated on the south side of terrace. In fact, during these years of concentrated flow in a big stream it attained too much speed for normal terrace building, and what building was done was insecure. In July 1923 and September 1924 the newly built but insecure terrace formation gave way and was carried down to the main road below. The road and the adjacent water supply reservoir were filled with soft oozy lime of dazzling whiteness. The reservoir had to be drained and cleaned.

It is to be hoped that Jupiter's present exhibition will continue all summer, as it could hardly be finer.

The green and blue pools of hot water at the top of Jupiter are as clear and beautiful as ever. They are great springs which supply some of the water for Jupiter and adjacent terraces.

The Canary Terrace, near the road, and above Jupiter is again active. It resumed activity last year after several years of total inactivity.

Climbing to the next higher level of terraces, we find the Narrow Gauge rather more inactive this year than last year. Only one spring is emitting water. This is at the extreme western end, and is not visible from the foot trails.

On the other hand, Angel Terrace which was nearly dead last year is resuming activity quite fast, and its north end is now highly colored, and a good sized stream of hot water is issuing from it. This is very pleasing to all park residents because Angel Terrace has always been one of the most beautiful of all the Mammoth Terraces.

The big old terrace, back of Angel, which usually becomes active in the spring is again active this year, but its water is issuing from near the foot of the terrace rather than from the top.

Glen Spring is short of water this year, but high above it a part of the old Highland Terrace is very active, and a big stream of intensely hot water is pouring over the limestone cliff, and the algae are building exquisitely colored terraces. This renewal of activity on Highland Terrace is the outstanding feature of the Mammoth Terraces this year. Standing as it does high above Angel and other active springs, and framed by pine and juniper trees it gives the sightseer a wonderful thrill.

In 1919, Landscape Engineer Punchard cut a vista from the main highway to Angel Terrace. Fortunately this vista now opens to view the splendid Highland Terrace activity.

Going still higher, and back of Highland, we find two sputtering little springs have just broken out below Devil's Kitchen and right on the edge of the parking space. Farther south along the Terrace Trail is the White Elephant, one of the biggest formations of the Mammoth Terraces.

It is active at the north end, but very little water is issuing from the central fissure. However, this fissure, which extends under the road, and far away to the south, is sending up a large volume of hot water into the middle of the road. It will be necessary to route the road around the spring.

Stygian Caves are in the same condition as last year, and Orange Spring which issues from a great mound has been exceedingly active during the early months of this year, but is now resuming normal activity, the hot water flowing over the south side of the mound, and cascading to a pool at the bottom. This mound is about twelve feet high.

Bath Lake is about two feet below normal high water mark. This is a natural bathing pool of warm water between Orange Spring and the Devil's Kitchen.

Regarding the Mammoth Terraces as ^awhole, they are considerably more active than they have been for several years; more water is issuing from the great springs, probably as a result of heavier snows of the past winter, and greater precipitation in the form of rain during the past two months. The many colored algae which live in the hot water are growing in more extensive fields and the grand result is that the terraces are very, very beautiful. Combining these facts with the general beauty of the hills and mountains around the Mammoth district due to luxurious growth of grasses and shrubbery the visitor to this section of the park has much glorious scenery to fill his eyes and soul.

Other Items of Interest

The approach road, Ashton to West Yellowstone, was opened on the 16th.

The first crew of workers sent out in the park this season consisted of 10 men; they left Mammoth for Canyon on the 11th, and had truck transportation to Norris; they walked from Norris to Canyon carrying with them such tools as they required. The first crew to Basin, consisting of 14 men left Mammoth on the 14th. The fish hatchery crew reached Lake station on the 23rd.

The ice went out of Yellowstone Lake on the 26th. Four sand hill cranes were observed in the Snake River District on the 15th.

VI. MUSEUM, NATURE GUIDE WORK, EDUCATIONAL WORK.

Since the arrival of Mr. Charles Phillips, who has been appointed a Park Ranger, to assist the Park Naturalist, the natural history of the park has been gone over, his services asked and given in work on an issue of the Nature Notes, in moving specimens and other goods from the present museum into storage space in the Barracks building, in preparation of tentative plans for the prospective new museum, in care of the animals on hand for the zoo at the Buffalo Corral, and in arranging literature on hand for a nature library. Otherwise Mr. Phillips' time has been given chiefly to photography under the direction of Messrs. Albright and Bilkert.

Work on the flying cage for the zoo was pushed as far as is possible pending arrival of material for the sides of the cage and availability of additional labor for erecting the frame and siding.

A widgeon duck was added to the species on hand for the zoo.

A continual search was made for the young of animal species desired for the zoo. A den of marmots was thus located and efforts are about to be made to capture the young.

Field trips were made as often as time allowed and many observations and sketches were the result. This material will appear in the next issue of Nature Notes.

For the museum were collected sets of eggs of the following birds:

- American coot
- Yellow-headed blackbird
- Western meadowlark
- Townsend solitaire

Daily care of animals on hand for the zoo, pending completion of permanent quarters, is now a part of the routine. There have been no casualties among these animals.

Some interesting correspondence, all complementary as regards comments on this department, has been received.

VII. MISCELLANEOUS.

Post Office

The Postmaster reports an unusual amount of business for this time of the year, due to the fact that weather conditions permit an early opening and concessioners are beginning activities to prepare for travel,

earlier than usual. Also that in addition to the regular work in the postoffice, he and his assistant have been very busy making preparations to move to the new quarters in the stone barracks assigned for a summer postoffice. The quarters have been thoroughly renovated and painted, and will be ready for occupancy by June 7th. About 450 sq. yds. of paint has been put on, without any cost to the Government except for the material.

Religious Services

Church services were held in the park during May on Sunday morning, the 17th, and Sunday morning, the 31st, by Rev. Wm. Friend Day, of Emigrant, Mont. Also on Thursday evening, May 14th, and Wednesday evening, May 27th, by Rev. George C. Koehler, of Livingston, Mont.

A program for church services for the summer season of 1925 was prepared, and submitted for approval.

Cordially yours,

HORACE M. ALBRIGHT
Superintendent.

The Director,
National Park Service,
Dept. of the Interior,
Washington, D. C.

AEM